Applied Health Science
(originally funded as North Rim Systems, a research and development unit)

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Project Title: AUTOMATED PRESSURE SORE STATUS TOOL

Printed Materials for the Technology:
Available on request from Michelle Toth at Applied Health Science

Technology Name:
Wound and Skin Intelligence System ™ or WSIS™

Original SBIR Grant Work:
The purpose of the early SBIR grant work was to validate and automate a standardized assessment instrument (the Pressure Sore Status Tool, originally authored by Dr. McNees' colleague, Dr. Barbara Bates-Jensen) for use in field settings for describing and tracking status changes in chronic wounds (e.g. pressure ulcers).

Fundamental Assumption of Utility:
The work was premised on the assumption that appropriate chronic wound management and treatment, as well as general improvements in practice could best be accomplished through: (a) objective descriptions of the status of the wound and (b) subsequent reliable reflections of change in that status. No such methodology or technology existed.

Subsequent Follow Along Research and Development:
Joining forces with Dr. Nancy Bergstrom (NINR has funded her prior R01 research; Chair of the AHCPR panels for Pressure Ulcer Prevention and Treatment) and Dr. Barbara Braden (namesake of the Braden Scale, the most widely used pressure ulcer risk assessment instrument) the system was elaborated to include not only wound assessment, but also risk assessment and tracking of changes in status across time. Through review of literature, guidelines and Dr. McNees' own data which was accumulated from beta testing, Dr. McNees has devised and automated a clinical decision support component for the system. Dr. McNees' publications support these statements.

Follow Along and Bridge Funding:
Dr. McNees states that his company has generated almost $2.25 million in addition to SBIR for product finalization and commercialization.

Brief Description of Technology (Today):
The WSIS (*Wound and Skin Intelligence System ™* or *WSIS™)* provides clinicians with the ability to assess risk and request a "case specific" prevention plan for reducing the probabilities that a wound will develop. The system tracks the realities of prevention and treatment outcomes over time and relates these outcomes to individual risk and wound profiles and interventions employed. Thus, the system has the capacity to "learn" from its own experience.

All users of the WSIS submit periodic data to Applied Health Science in Seattle. Dr. McNees reports that currently the data comes in from Australia, New Zealand, Canada and the United States. The company's relationship (described subsequently) with Bristol-Myers Squibb and ConvaTec will likely result in dissemination and data accumulation from approximately 75 countries.

Through this strategic world-wide approach to standardized assessment, intervention specification, data integration and analysis, Dr. McNees anticipates much faster determination of "better" practice and incremental improvements over time. A two-year controlled evaluation in a health region in British Columbia, Canada has been completed. The results reflect marked decreases in pressure ulcer prevalence and significant decreases in time to healing for chronic wounds.

NIH and NINR have played a central and seminal role in the provision of the technology. This system is improving one aspect of health care and is now in use in the United States, Canada, New Zealand and Australia with German and Japanese versions in the works.

Commercialization of the System:
ConvaTec is a wholly owned business unit of Bristol Myers-Squibb and is the largest wound products company in the world. After being approached by many of the major wound and skin products companies, Dr. McNees' company developed a strategic alliance with ConvaTec wherein they would provide continuation funding for follow-along and bridge work leading to the commercialization. In exchange, Dr. McNees granted a right-of-first-refusal for licensing the system. ConvaTec subsequently executed that right, thus merging Dr. McNees' technology and research capabilities with ConvaTec's marketing power; a presence in about 80 countries world-wide. ConvaTec subsequently bought all rights to the software. However, Applied Health Science (AHS) retained the world-wide data "pipelines", warehouse and analytical functions. AHS also has a right-to-first-review for any elaboration of or changes in the system.

Revenue and Growth:
Dr. McNees states that the current projections reflect $30 million annually in revenue from the United States market. ConvaTec is in the process of forming a new business unit. Applied Health Science anticipates adding about one employee for each 75 users of the system. Together with ConvaTec, Dr. McNees' company is forming strategic partnerships and alliances with other small businesses who provide technologies and services which add function and value to the existing system (e.g. a tele-medicine home health company in Chicago and a long term care claims processing company in Nashville).

Continuing Work and Spin-offs Stimulated by SBIR:
With the help of critical early support through SBIR and the development of the WSIS, Dr. McNees is now focusing on other chronic conditions of aging populations. For example, Dr. McNees has formed a strategic alliance with SRS Medical in Boston to develop a comprehensive system for urinary incontinence that is similar in concept to the WSIS. Dr. McNees reports that the "modules" will revolve around a central core and data from one system to potentially enhance "learning" in the other system. Dr. McNees is also working on nutritional deficits in the elderly.

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